Developing a Risk Communication Strategy

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Increasing concern over environmental problems and the passage of more stringent legislation have led utility personnel to recognize that risk communication must become a part of their overall approach to environmental management. The key to effective risk communication is the two-way exchange of information between the utility and the public. The utility explains technical data to interested segments of the public, who in turn voice their concerns, opinions, and reactions. As well as being involved in a dialogue concerning the nature of the risk, the public should also be involved in decisions relating to its control.

Increasing concern over environmental problems, especially those involving toxic chemicals, has led to the realization that effective environmental management is not possible without effective communication. The complex decisions regarding the control of toxic chemicals in drinking water require more than just an understanding of the risks posed and the pollution-control mechanisms that are available. These decisions cannot be made independently by water utilities but require public involvement and risk communication.

Risk communication refers to the process of explaining or communicating environmental health and safety—or risk—information. In a 1986 report to the US Environmental Protection Agency (USEPA), Covello et al defined risk communication as "any purposeful exchange of information and interaction between interested parties regarding health, safety, or environmental risks."[1] This definition recognizes that risk communication, like any other form of communication, is a two-way process, involving a source that transmits a message via a communication channel, e.g., TV, radio, or newspaper, to a receiver. Defining risk communication in terms of basic communication theory illustrates how communication cannot occur without interaction between the source and the receiver.[2] Communication must be two-way. If this premise is accepted, then it is clear that risk communication is more than "explaining the data more clearly" or "explaining the numbers."

Risk communication helps explain technical information more clearly to lay audiences. Risk comparisons can be used that are not offensive or misleading, graphics can illustrate a point without obscuring the information, and the use of jargon in verbal presentations and written materials can be avoided. For it to be effective, however, risk communication involves much more than this. Risk communication is a process rather than a set of specific gimmicks or techniques. It requires awareness of the factors that affect the communication process and, perhaps more important, how individuals perceive risk and risk information. In fact, focusing on the communication *process* rather than just the *risk* may be one of the most important considerations for successful risk communication. In a nutshell, the key to effective risk communication is two-way communication.

Risk communication entails responding to the concerns, opinions, emotions, and reactions of the various stakeholders in the exchange.

Risk communication involves active listening, not just speaking. It entails responding to the concerns, opinions, emotions, and reactions of the various stakeholders in the risk-communication exchange and not just providing facts or responding to assumed misperceptions. Effective risk communication recognizes that the public has a right to receive information and to be actively involved in both the dialogue regarding the nature of the risk and in decisions about ways to minimize or control identified risks. This dialogue often blurs the distinction between risk assessment (Is there a risk? What is it and how bad is it?) and risk management (What should we do about the risk?). Issues of risk acceptability may become a part of the program even if there is no clear mechanism—or desire—to involve the public in these complex issues and decisions.

In developing a communication strategy, the focus should be on building strong communication channels between those who will communicate the information and the various audiences or receivers. This relationship needs to be built up over time, and it will change over time. It requires trust, openness, and honesty. Risk communicators must

be perceived as credible. If the source is not considered credible, the message—especially if it involves risk information—will not be believed. Although utilities may sincerely want to be considered good neighbors, this can only happen when management is committed to the idea that informing and involving the public are legitimate activities. Management must convey this commitment to all staff who may have the opportunity to interact with the public. Risk communication cannot be left to the official spokesperson. Risk communication is a part of everyone's job and is everyone's responsibility.

Developing an effective risk-communication program involves specific steps: (1) determining communication goals and objectives, (2) identifying the audience and its concerns, (3) understanding issues of risk perception that will influence the audience, (4) designing risk-communication messages and testing those messages, (5) selecting the proper communication channels, (6) implementing the plan, and (7) evaluating the risk-communication program.

Goals and objectives

Risk communication can have several goals and objectives. Sometimes the goal is to alert people to a particular risk and move them to action. For example, local authorities and utilities may be required to inform the public if testing shows contamination of the water supply or if certain chemical constituents exceed defined levels. At the other end of this spectrum, the public might have to be instructed not to drink the water or to boil it (in the case of some bacterial contamination) prior to consumption. At other times, the goal of risk communication is to tell people not to worry, to calm down. In these instances, the communicator wants to inform individuals that a particular situation does not pose a health risk. Utility managers find these situations particularly difficult. For example, how are testing results explained that show a drinking water constituent to be right below, right at, or right above the maximum contaminant level? Because people's concerns and information needs are different when they are being alerted and when they are being calmed down, strategies for communicating also need to vary.

Researchers have described some general purposes or objectives for risk communication:[3]

- education and information,
- improving public understanding,
- behavior change and protective action,
- organizationally mandated goals,
- legally mandated or process goals, and
- joint problem solving and conflict resolution.

An ideal goal might be for the public to better understand the technical issues and risk information and for the utility and government agencies to more fully appreciate the public's concerns, fears, and values. With the achievement of this objective, stakeholders can move from information and education to problem resolution. In reality, limitations of time, money, and personnel—and even regulatory constraints—may restrict the effectiveness of a risk-communication exchange.

Each event prompting the need for risk communication will have its own objectives. In designing a risk-communication program, the particular risk-communication needs and corresponding objectives are first determined. Goals and objectives lay the framework for the design of specific messages and activities. This framework establishes what needs to be communicated and why.

A 1986 report by the USEPA described four main rules for risk communicators:[1]

- know your risk-communication problem,
- know your risk-communication objective,
- use simple and nontechnical language, and
- listen to your audience and know its concerns.

Identifying audience, concerns

Often, risk communicators, and in particular public agency officials, inadvertently place too much emphasis on the design of a particular risk-communication message and how to simplify or better explain the technical risk information. To ensure that communication is two-way, more attention should be focused on the receiver. This means first identifying the various audiences.

Although it may not be possible to reach everybody, it is important to try to identify individuals and groups who have an interest or stake in the issue and to provide an opportunity for these people to be involved. As a starting point, existing mailing lists or geographic information on member communities may be used. Within a particular geographic area, several tiers of audiences will exist that may include individuals or groups with a particular interest in the issue. Your audience, however, should not be limited to just geographic neighbors. Other audiences may exist based on common demographic, educational, or other interests (see side bar).

When identifying audiences, it is important to recognize that individuals and groups will frequently have concerns and information that they wish to share. Thus, audience identification goes beyond just determining who needs to be informed. The fundamental challenge of risk communication is what to do with the people who have something to say. Their concerns, of course, must be documented. This can be thought of as a data-collection activity—as well as an exercise in active listening. For effective

Checklist to aid in audience identification

- Local government agencies, e.g., (board of health, planning commissions)
- Education groups
- Academic institutions
- Local elected officials
- State and federal government agencies
- Chambers of Commerce
- Unions
- Professional organizations
- Local, regional, and national environmental groups
- Local businesses
- Civic organizations
- Community associations
- Property owners
- Religious organizations
- Senior citizen associations
- Public interest groups
- Sporting and recreational clubs
- Media
- Other interest groups

communication to occur, public concerns must be known prior to the relaying of risk information. Only then can the message be presented and disseminated in a manner that acknowledges and addresses the attitudes and apprehensions of the receivers.[2]

Although audience concerns vary from situation to situation, it is possible to categorize them. Chess et al[4] developed four general categories of concerns: (1) health and lifestyle concerns, (2) data and information concerns, (3) process concerns, and (4) risk-management concerns. Health and lifestyle concerns are often the most important because in any risk situation, people inevitably want to know what the implications are for themselves and their families. Santos and Edwards[2] described this as the "What does it mean to me?" series of questions. Citizens want to know if they will be "safe." For water utilities, this translates to any number of specific concerns, such as: Can I drink the water? Will I get cancer? Can I use the water to cook or to irrigate my garden? Will my water rates go up? Because these are commonly the first questions people ask, risk-communication messages must clearly address and respond to these issues.

Data and information concerns are usually associated with the technical basis for—and uncertainties involved in—any estimation of risk, e.g., Are your studies correct? Did you sample for the right parameters? Process concerns relate to how decisions are made by the utility or responsible agency when responding to a risk and to how communication occurs: Who decides? How are we informed? Obviously, trust and credibility are important in these issues, as is the control the public feels it has in the decision-making process. Finally, risk-management concerns relate to how and when the risk will be handled; i.e., Will it be effectively mitigated, avoided, or reduced? To answer this concern, citizens will often look to an organization's previous track record in making decisions and responding to risk situations.

A variety of techniques is available for documenting audience information needs and concerns, including interviews, written or telephone surveys, information gathering (e.g., shopping mall exit interviews), the use of existing public poll information, review of news coverage and letters to the editor, small informal community group meetings, and focus groups. Focus groups are being used more and more as a relatively inexpensive means of identifying audience attitudes, opinions, and concerns. Participants are selected from a specific target group or from the general population. Besides being employed to identify audience concerns, focus groups can be effectively used to test risk messages. When carefully designed and conducted by an experienced facilitator, focus groups can serve as a valuable source of information.

A utility's trustworthiness can be increased by collaboration with credible sources who can help to communicate the utility's message to the public.

Once audiences have been identified and their needs and concerns have been determined, the information is rated as to its relative importance. Because risk-communication resources are limited, the emphasis should be on key issues and the most important audiences.

Risk perception

In addition to listening effectively, utilities must try to understand how the public perceives risk and risk information. Frequently, the public views a risk quite differently from the way a public agency or utility views the risk. Various researchers have identified and classified more than 25 characteristics of risk perception.[5,6] Sandman[6,7] coined the term "outrage" to describe a variety of factors that influence the public's perception of risk. Outrage, as defined by Sandman, is everything about a risk *except* how likely it is to cause harm. To truly understand audience needs and concerns, risk communicators should analyze a particular situation to see what outrage factors are at play. These risk-perception issues can dramatically influence communication exchange. Sandman's categorization of risk perception characteristics as outrage factors depends on whether the risk is perceived as

- voluntary or involuntary,
- controlled by the system or controlled by the individual,
- fair or unfair,
- having trustworthy or untrustworthy sources,
- morally relevant or morally neutral,
- natural or artificial,
- exotic or familiar,
- memorable or not memorable,
- certainty or uncertainty,
- undetectable or detectable, and
- dreaded or not dreaded.

Voluntary or involuntary. Risks that are voluntary are usually perceived by the public as less serious, i.e., less dangerous, than those that seem to be involuntary or imposed. When people feel that a risk is being imposed on them, they perceive it as outrageous and they attribute to it a higher level of risk—regardless of the actual hazard. A voluntary risk (such as smoking or driving without buckling the seatbelt) should never be compared with a perceived involuntary risk (such as drinking contaminated water). To make such a comparison would greatly heighten citizen outrage.

Controlled by the system or the individual. People tend to view risks that they cannot control as more threatening than those that they can control, regardless of the actual hazard. Water contamination and concentrations of toxic pollutants (whether regulations deem them allowable or not) are perceived to be beyond the control of the individual. In the area of drinking water, in particular, outrage will increase if the public feels that utilities or local government agencies have all the control over the perceived risk. In order to deal with this factor, the utility or agency can establish a mechanism through which citizens have a voice in the decision-making that relates to the control of contaminants or other water supply issues that affect their lives.

Trustworthy or untrustworthy sources. How individuals view a risk is often a function of how much they trust the organization that seems to be imposing or allowing the risk and of how credible they believe the source of risk information is. A utility's trustworthiness and credibility can be increased by its collaboration with credible sources outside the organization who can help to communicate the utility's message to the public. Trust and credibility have to be nurtured; they don't just happen.

Morally relevant or morally neutral. Risks that are ethically objectionable will be perceived as more dangerous than those that are not. Many people feel that pollution is morally wrong, and this makes talk of cost-risk tradeoffs sound callous. This feeling contributes to the public's desire to reach a zero-risk level. It is important that utilities acknowledge that pollution or contamination at any level is wrong—which is not the same as saying it will cause a health problem.

Recognizing and acknowledging feelings of this kind will aid a utility in gaining the acceptance of realistic cleanup goals. It also is important to note that there was not malicious intent to create the risk, but there is committed intent to mitigate the risk to the greatest extent technology permits.

Exotic or familiar. Exotic risks appear more risky than familiar risks. For example, household cleaners seem less risky than the chemical plant that makes them. Toxic pollutants, with their long names, can certainly seem exotic. The challenge for risk communicators is to try to remove some of the mystery surrounding these pollutants and their effects. Demystifying the risk will help get the message across.

Dreaded or not dreaded. Risks that are dreaded seem more serious than those that carry less dread. For example, toxic chemicals that are carcinogens may seem more risky and less acceptable than those that cause emphysema, even though both are capable of causing diseases that can be fatal. It is important that communication efforts recognize and acknowledge this dread. Health effects associated with acute exposure must be differentiated from those associated with chronic exposure and carcinogenic effects differentiated from noncarcinogenic effects. The risk message puts the health effects information into the proper perspective, so that people can comprehend the difference between significant and less significant risks. This can be especially important for risks associated with drinking water.

Certainty or uncertainty. Risks that are thought to be more certain or known are often perceived by the public to be less serious (and more acceptable) than those that are not. Conversely, risks that scientists are uncertain about are considered far more serious. In these cases, the public tends to want to err on the side of caution; that is, it does not want to accept risks that are uncertain. Therefore, risk-communication efforts must acknowledge points of uncertainty to maintain credibility.

Risk-perception considerations cannot be ignored or minimized as emotional, unfactual, or irrelevant. Emotions, feelings, values, and attitudes carry as much—if not more—importance for the public than the technical magnitude of the risk situation. Utilities must recognize and acknowledge that risk perception is not public hysteria. An appropriate starting point for potential risk communicators might be to determine the risk perception factors at work and how they might affect communication.

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Designing messages

As well as responding to citizen concerns, a risk communication message includes information that the utility wants to relay, such as facts about

- the organization and its credibility,
- the project,
- the reasons for undertaking the project,
- the risks or impacts,
- the precautions that have been built into the plan,
- the unknowns and how the organization intends to account for these uncertainties, and
- the involvement of the public.

After the content of the message has been defined, the next step is deciding how to state or present it. Will the message be written or presented orally? If presented orally, who will be the communicator?

Written messages and oral presentations must transmit the information to the public in an understandable form. Many risk analysts tend to use overly technical or bureaucratic language, which may be appropriate for the risk-assessment document and for discussions with other experts but not for communicating with the general public. Scientists are by nature precise and, as such, tend to describe all the uncertainties and limitations associated with a risk assessment. This is frightening and overwhelming for the public, who is trying to figure out what the risk means and wants certainty—not caveats. Rather, the message should explain, as simply and directly as possible, such things as risk estimates, exposure considerations, and risk comparisons. Because different audiences have different concerns and levels of understanding, one risk message may not be appropriate for all interested parties. It may be necessary to develop a series of messages on the same topic.

A good communicator is equally comfortable in active listening and in public speaking. Training technical and management staff to become effective communicators should be a key part of a utility's overall risk-communication strategy.

A critical part of successful message design is testing or trying out the message. This can be done formally, e.g., by the use of focus groups or citizen advisory committees, or informally, e.g., by testing the material on uninformed third parties.

In the process of testing the message, the utility is looking for feedback. Is it clear? Does it meet objectives? Will it evoke outrage? Does it answer overt questions? Does it address underlying concerns? Once these questions have been answered, the script can be revised and the message finalized.

Selecting communication channels

Next, the best way to "get the message out" has to be determined. The challenge is to find the right channel of communication for each audience, because one channel may not be appropriate for all. Also, the choice of channels may change over time, i.e., at different project phases such as study, design, implementation, and crisis response.

Communication channels are selected that make the best use of resources while still meeting overall goals. For example, door-to-door evening visits with neighbors might be identified as the best way to reach a target audience, but staff may not be available for conducting such visits. Instead, the organization might opt for a newsletter, hand-delivered by employees, or decide on several informal community meetings in citizens' homes.

Techniques for communicating with the public include the use of

- brochures,
- information packets,
- newsletters (perhaps one that is published regularly),
- videotapes or slide shows,
- advertisements,
- fact sheets, and
- press releases.

Plant activities might include

- open house and plant tours,
- emergency drills and exercises, and
- educational and informational workshops.

Other outreach activities include communicating through

- community meetings,
- community advisory groups,
- service group presentations,
- educational activities with schools,
- the news media (e.g., radio and television interviews),

- other credible sources or existing groups, and
- a telephone hotline established by the organization.

It's important to target outreach activities to meet the needs of specific audiences.

Public meetings, especially formal ones, are a common communication technique. Thorough planning for these meetings—from logistics to determining the meeting agenda and objectives—is critical. Some general issues also need to be considered, e.g., providing background information and ensuring that the audience understands and, therefore, receives the information you want to communicate. In an ideal situation, educational information is distributed prior to the meeting at which results are being explained. It may also be appropriate to provide materials that people can take home, such as fact sheets summarizing drinking water analyses, the risk assessment, or the water treatment process.

For any risk-communication activity—particularly for public meetings—a utility can consider collaborating with other credible sources, such as scientists, doctors, and educators. If the subject to be discussed is controversial, thought should be given to having an impartial moderator run the meeting. A successful meeting is frequently one that has been structured to give as much control as possible to the public—while still being conducted in an orderly fashion.

Just as written materials need to be tested, public meetings need to be rehearsed in anticipation of tough questions that may arise.

Evaluating the program

The last step is an evaluation of the implemented risk-communication program. At a minimum this involves evaluating previous communication outreach activities, such as public meetings; evaluating written materials, such as fact sheets and brochures; and evaluating media interaction and news coverage. Kline et al[8] suggested several components for an evaluation program.

Audience analysis. Audience analysis is designed to help agencies understand audience perceptions and solicit feedback from key audiences before, during, and after a communication program. Such analyses can include discussions by utility staff of predicted audience positions, gathering questions from audiences in advance of meetings, analyzing news clippings, public opinion polling, and qualitative questionnaires.

Message pretesting. Such pretesting allows agencies to gather feedback on written materials before they are printed and distributed. Message pretesting can include surveys and questionnaires; discussion groups, e.g., focus groups; and reviews of the language used in the materials.

Assessing communicator style. These assessments help organization spokespersons realize what attitudes and strengths they bring to risk communication. In the past, risk communicators have, typically, focused on scientific facts, a focus that may not be the same as the audience's and can lead to an impasse in communication. Most of the tools available to assess communicator style are self-assessment surveys that are completed and then scored, providing a profile of the respondent's style and motivational pattern.

Outcome analysis. Outcome analysis tools, which examine communicator performance and audience reaction, include meeting reaction forms for participants in public meetings, verbal feedback, speech evaluation checklists, and internal observation and debriefing. Basically, these tools help answer the questions: How did we do? and What could we do differently?

Once evaluation is complete, it is time to review the risk-communication program and make any necessary adjustments. The tendency to delay thinking about communication until the next crisis should be avoided. Commitment to an ongoing risk-communication program may not have dramatic results at first but, with time, the benefits will be evident.

Summary

Risk communication is still a relatively new concept, but it is gaining much attention. Organizations—public and private alike—are realizing that communication is part of an evolving culture. Such cultures recognize not only that the public is demanding more information and is entitled to information that affects it but also that risk communication can improve the risk-management decision-making process and directly benefit company operations. With the passage of more stringent environmental legislation, including an increasing number of drinking-water regulations, risk communication must become a part of a utility's overall approach to environmental management. Advance planning will facilitate the risk-communication process and set the stage for effective and meaningful two-way communication.

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